

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR REISSUE

AMENDMENT UNDER 37 C.F.R. §1.173(b)

Applicant: Allan S. Gengler, et al.

Patent No.: 6,158,523

Date: August 23, 2001

Issued: December 12, 2000

Group Art Unit:

Exam:

For: AGRICULTURAL DISC MOUNTING SYSTEM AND METHOD

Commissioner for Patents
Box: REISSUE
Washington, D. C. 20231

Sir:

A copy of the specification and claims of the above referenced patent is attached. As part of this application for reissue, please amend the patent as follows:

IN THE CLAIMS

Please cancel Claim 5 without prejudice.

Please amend the remaining claims as follows:

1. (amended) An individual disc mounting system for an agricultural implement having a plurality of individual disc blades, the mounting system comprising:
- a. a generally U-shaped leaf spring with an upper leg and a lower leg connected by a closed end, said lower leg having a longitudinal axis and a bottom surface generally parallel to said longitudinal axis;
 - b. a mounting apparatus configured to attach said upper leg to the implement, such that said lower leg longitudinal axis is oriented generally horizontally; and
 - c. a disc spindle apparatus attached to said leaf spring lower leg such that said disc spindle apparatus extends outward from said lower leg in a direction which is generally transverse to said lower leg bottom surface, said disc spindle apparatus supporting a bearing which accommodates only one of the individual disc blades such that the disc blade is positioned alongside a portion of said leaf spring lower leg and is freely rotatable relative to said spring lower leg, wherein positioning of said leaf spring at least partially alongside the disc blade allows the disc blade to deflect vertically, horizontally and/or torsionally when it encounters an obstacle.
11. (amended) An agricultural implement including a plurality of front disc blades positioned proximate a front end of the implement with the front disc blades being spaced laterally across the implement, a plurality of rear disc blades attached to the implement proximate a rear end thereof, with the rear disc blades also being spaced laterally across the implement, and a plurality of ground working tools having ripper shanks attached to the implement

with each of the ripper shanks being positioned intermediate the front and rear disc blades, the improvement comprising a disc mounting system for attaching at least said front disc blades to said implement, comprising:

- a. a leaf spring with an upper leg and a lower leg connected by a closed end;
- b. a mounting apparatus configured to attach said upper leg to the implement; and
- c. a disc spindle apparatus attached to said leaf spring lower leg such that said disc spindle apparatus extends outward from said lower leg, said disc spindle apparatus supporting a bearing which accommodates only one of the disc blades such that the disc blade is positioned alongside a portion of said leaf spring lower leg and is freely rotatable relative to said spring lower leg, wherein positioning of said leaf spring at least partially alongside the disc blade allows the disc blade to deflect vertically, horizontally and/or torsionally when it encounters an obstacle.

16. (amended) An agricultural implement including a plurality of front disc blades positioned proximate a front end of the implement with the front disc blades being spaced laterally across the implement, a plurality of rear disc blades attached to the implement proximate a rear end thereof, with the rear disc blades also being spaced laterally across the implement, and a plurality of ground working tools having ripper shanks attached to the implement with each of the ripper shanks being positioned intermediate the front and rear disc blades, the improvement comprising a disc mounting system for attaching at least said front disc blades to said implement, comprising:

- a. a leaf spring with an upper leg and a lower leg connected by a closed end, wherein said leaf spring closed end is canted at an angle with respect to vertical such that said upper leg is offset with respect to said lower leg;
- b. a mounting apparatus configured to attach said upper leg to the implement; and
- c. a disc spindle apparatus attached to said leaf spring lower leg such that said disc spindle apparatus extends outward from said lower leg, said disc spindle apparatus supporting a bearing which accommodates one of the disc blades such that the disc blade is positioned alongside a portion of said leaf spring lower leg and is freely rotatable relative to said spring lower leg, wherein positioning of said leaf spring at least partially alongside the disc blade allows the disc blade to deflect vertically, horizontally and/or torsionally when it encounters an obstacle.

21. (amended) A method of mounting an individual disc blade to an agricultural implement, comprising the steps of:

- a. providing a generally U-shaped leaf spring with an upper leg and a lower leg connected by a closed end, said lower leg having a longitudinal axis and a bottom surface generally parallel to said longitudinal axis;
- b. mounting said leaf spring upper leg to the implement, such that said lower leg longitudinal axis is oriented generally horizontally; and
- c. attaching a disc spindle apparatus to said leaf spring lower leg in a position such that said disc spindle apparatus extends outward from said lower leg in a direction

which is generally transverse to said lower leg bottom surface, said disc spindle apparatus supporting a bearing which accommodates only one disc blade such that the disc blade is positioned alongside a portion of said leaf spring lower leg and is freely rotatable relative to said leaf spring lower leg.

Please add the following new claims:

38. An agricultural implement including a gang of disc blades spaced laterally across the implement, each disc blade in said gang being individually mounted to said implement by a disc mounting system comprising:

- a. a leaf spring with an upper leg and a lower leg connected by a closed end;
- b. a mounting apparatus configured to attach said upper leg to the implement; and
- c. a disc spindle apparatus attached to said leaf spring lower leg such that said disc spindle apparatus extends outward from said lower leg, said disc spindle apparatus supporting a bearing which accommodates only one of the disc blades such that the disc blade is positioned alongside a portion of said leaf spring lower leg and is freely rotatable relative to said spring lower leg.

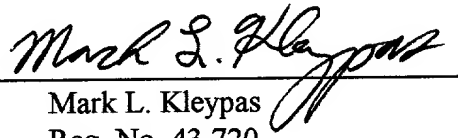
39. The disc mounting system as in Claim 38, wherein said disc spindle apparatus is attached to said leaf spring lower leg such that said disc spindle apparatus is canted at an angle in the range of 3 to 13 degrees from horizontal.

40. The implement as in Claim 38, wherein said leaf spring is generally U-shaped.
41. The implement as in Claim 38 wherein said gang of disc blades is a first disc gang positioned proximate a first end of said implement and said implement further includes a second disc gang positioned proximate a second end of said implement opposite said first end.
42. The implement as in Claim 41 wherein said implement further includes a plurality of ground working tools having ripper shanks attached to the implement with each of the ripper shanks being positioned intermediate the first and second disc gangs.
43. The implement as in Claim 38 wherein:
- a. said lower leg has a longitudinal axis and a bottom surface generally parallel to said longitudinal axis;
 - b. said mounting apparatus is configured to attach said upper leg to the implement such that said lower leg longitudinal axis is oriented generally horizontally; and
 - c. said disc spindle apparatus extends outward from said lower leg in a direction which is generally transverse to said lower leg bottom surface.
44. The implement as in Claim 38 wherein said leaf spring closed end is canted at an angle with respect to vertical such that said upper leg is offset with respect to said lower leg.

In the event that the Examiner is of the opinion that the prosecution of this application for reissue can be advanced thereby, he is invited to contact Applicant's attorney at the telephone number listed below.

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR REISSUE

STATEMENT OF STATUS OF CLAIMS AND

SUPPORT FOR ALL CHANGES TO THE CLAIMS UNDER 37 C.F.R. §1.173(c)

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Status of Claims:

Claims 1-4 and 6-44 are pending. Of the pending claims, Claims 1-4 and 6-37 are the original patent claims and Claims 38-44 are new claims. Claim 5 is cancelled herein, and amendments are made to original Claims 1, 11, 16 and 21.

Support for Changes to the Claims:

Claim 1 is amended to include the limitations of Claim 5, and to thereby specify that the leaf spring used in the claimed disc mounting system is “generally U-shaped.” Likewise, Claim 21 is amended to specify that the spring used in the claimed mounting method is “generally U-shaped.” U-shaped springs are clearly shown in Figures 3-10 and described at column 5, lines 54-56; column 6, lines 58-64; and column 7, lines 11-15.

Claims 11 and 16 are amended to specify that only the front disc blades need be individually mounted to the implement using the claimed mounting system. An implement having the front disc blades individually mounted and the rear disc blades conventionally mounted in rigid disc gangs is shown in Fig. 1. and described at column 2, lines 36-40 and generally throughout the specification.

New Claim 38 is directed toward an implement having a gang of disc blades wherein each disc in the gang is individually mounted to the implement. Such an implement is shown in Figure 1 and discussed generally throughout the application, and in particular from column 5, line 2 to column 6, line 17.

Claim 39 depends from Claim 38 and specifies that the disc spindle is canted at an angle of from 3 to 13 degrees from horizontal. This feature is discussed at column 6, lines 15-17.

Claim 40 depends from Claim 38 and specifies that the spring is generally U-shaped. U-shaped springs are clearly shown in Figures 3-10 and described at column 5, lines 54-56; column 6, lines 58-64; and column 7, lines 11-15.

Claim 41 depends from Claim 38 and specifies that the implement has a second disc gang at an opposite end of the machine. Such an implement is shown in Figure 1 and discussed generally throughout the application, and in particular from column 5, line 2 to column 6, line 17.

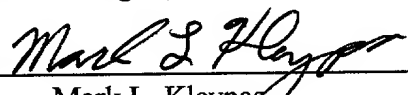
Claim 42 depends from Claim 41 and adds the limitation that the implement includes ripper shanks mounted between the first and second disc gangs. Ripper shanks are shown in Fig. 1 and discussed at column 5, lines 23-41.

Claim 43 depends from Claim 38 and adds limitations specifying the orientation of the disc spindle relative to the spring lower leg. This orientation is shown in Figs. 5-8. In addition, the language is generally identical to language included in issued Claims 1 and 21.

Claim 44 depends from Claim 38 and adds the limitation that the closed end of the leaf spring is canted. This feature is shown in Figs. 5 and 6, and discussed at column 5, line 65 to column 6, line 3.

Respectfully submitted,

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